



Delivered via electronic mail

January 21, 2008

Science Advisory Team
Marine Life Protection Act Initiative
c/o 1416 Ninth Street, Room 1311
Sacramento, CA 95814

RE: Levels of Protection for Evaluation of Marine Protected Areas

Dear Members of the Science Advisory Team:

We are writing on behalf of Ocean Conservancy and the Natural Resources Defense Council to comment on issues relating to the design and evaluation of new marine protected areas (MPAs) for the North Central Coast region. We urge the SAT to remain mindful of the unique and critical role of fully protected state marine reserves both in complying with the legal requirements of the MLPA and in meeting a wide range of ecological goals. We also encourage the SAT to err on the side of caution in assigning State Marine Conservation Area (SMCA) levels of protection in the absence of conclusive data regarding the ability of partial take areas to contribute effectively to meeting the goals of the MLPA.

In summary, this letter addresses the following points:

- The MLPA requires the preferred network to include a core of state marine reserves to protect all key marine habitats and associated biological communities.
- The precautionary approach is central to the MLPA.
- Empirical research documenting conservation benefits of MPAs is largely based on studies of fully protected marine reserves.
- Partial-take MPAs do not provide the full benefits of no-take reserves.
- Partial-take areas are more difficult to effectively administer and enforce than no-take areas.

The MLPA Requires a Core Network of State Marine Reserves.

The MLPA requires development of a comprehensive network of marine protected areas, anchored by fully protected state marine reserves (SMRs) representing all key habitats in replicate. The MLPA recognizes that a range of MPAs can contribute to the goals of the Act and thus allows use of partial take areas including both SMCAs and state marine parks,

however, the law explicitly requires adoption of an “improved marine reserve component” (FGC Section 2853 (c) (1)) and describes marine reserves as “an essential element of an MPA system.” (FGC Section 2851 (f)) Thus, in adopting the MLPA, the California Legislature recognized the unique value of fully protected SMRs, mandating that this highest level of protection be the backbone of California’s new system of MPAs.

The MLPA Master Plan (Page 52-53) also notes the unique benefits of SMRs.

State marine reserves (SMRs) provide the *greatest level of protection* to species and to ecosystems by allowing no take of any kind (with the exception of scientific take for research, restoration, or monitoring). The high level of protection created by an SMR is based on the assumption that no other appreciable level of take or alteration of the ecosystem is allowed (e.g., sewage discharge, seawater pumping, kelp harvest). In particular, SMRs provide the greatest likelihood of achieving MLPA goals 1, 2, and 4.

All other MPA designations (SMCA and SMP) allow some level of extraction of one or more species. The indirect effects of this extraction are poorly understood, both with regard to how other species in the ecosystem are affected (e.g., predators, prey, competitors), as well as incidental take of other species (i.e., bycatch). Because of this uncertainty, SMRs can provide managers with a greater certainty in meeting the objectives of ecosystem-wide protection (Goal 1) and provide them with comparisons to other types of MPAs to better understand the consequences of the direct and indirect effects of extraction allowed in those MPAs.

The Master Plan (Page 54) further notes that even High Protection SMCAs “do not have as high protection and conservation value as no-take SMRs, and are less likely to achieve MLPA goals 1, 2, and 4. Moreover, SMRs are needed to evaluate the effects of SMCAs that allow the take of pelagic finfish.”

The MLPA Requires a Precautionary Approach.

Unlike traditional fisheries management regulations, the goals of the MLPA are directed at marine biodiversity, ecosystem function and restoration of marine life populations as well as providing improved opportunities for research, education and recreation. Given the limited state of existing knowledge regarding marine species interactions and ecosystem functions, there is considerable uncertainty regarding the specific role of most individual species within the marine ecosystem or the potential effects of intentional or unintentional removal of these species.

Given the conservation goals of the MLPA, and the considerable level of scientific uncertainty that exists in marine systems, scientific evaluation of the potential conservation contributions of partial-take MPAs should be precautionary in nature. Where data are unavailable or data quality is poor, the SAT should recommend that MPA network designs be crafted to allow scientific questions to be tested and to inform adaptive management. We believe that issues relating to potential impacts associated with salmon trolling in MPAs fall into this category.

The SAT has been asked by certain stakeholders to weaken existing standards related to the level of protection assigned to MPAs that allow salmon trolling in shallow water (less than 50 meter depth). At the January 8, 2008 SAT meeting, observer data, landing receipt and port sampling data related to bycatch associated with salmon trolling were made available. The data available suggest that rates of bycatch are higher in shallow water areas versus deeper water, consistent with the existing SAT evaluation methodology. Unfortunately, the existing data suffer from a variety of problems: the logbook data appears to include some salmon trips that in fact targeted rockfish; the observer data was based on a limited number of trips; and neither set of data distinguishes between habitat type (hard bottom or sandy bottom).

Furthermore, the data presented to the SAT was based largely on levels of bycatch as a percentage of salmon catch. No data was presented that would provide a meaningful context for determining the potential impact of the “associated catch rates” of species likely to benefit from MPAs vis-a-vis the goals of the MLPA. For example, the document entitled “Impact of associated catch from salmon trolling” prepared by SAT member Ray Hilborn suggests that the sport trolling catch rate in areas < 50 m deep is between 2 to 5% or 12,000-30,000 fish. Doctor Hilborn then estimates the population-level impacts on bycatch species and concludes they are not significant. This analysis ignores the possibility that bycatch impacts to species likely to benefit from MPAs (those with limited home ranges) would be concentrated in specific places (such as within SMCAs). The SAT was not presented with information that would allow it to assess the significance of this amount of take on the ability of MPAs to increase resilience and achieve other place-based goals of the MLPA.

We ask that the SAT proceed with caution in making any changes in the current levels of protection where evidence of no impact is lacking, and instead encourage MPA designs and studies that allow a test of the proposition that salmon trolling in shallow water provides equivalent protection as salmon trolling in deep water (taking into account compliance issues and variations in trolling practices). We further suggest that studies that look at potential difference in bycatch levels related to bottom habitat type may also be useful. Until such data are available, we question whether the SAT has sufficient basis for upgrading the level of protection assigned to shallow water trolling.

Empirical Evidence of MPA Effectiveness is Largely Based on Marine Reserves.

Most of the research that has been published regarding the impacts of MPAs has been based on studies related to fully protected marine reserves. For example, the National Research Council (2001) Report on MPAs includes a chapter documenting a variety of conservation benefits associated with MPAs including increases in abundance, body size, biomass, diversity, and reproductive capacity within MPA areas. Virtually all the studies referenced in this chapter of the NRC Report are based on studies in no-take marine reserves. Similarly, Halpern's 2003 review of 89 existing published studies on the effects of marine reserves is limited to no-take areas.

Given that most of the published scientific research on the benefits of MPAs was performed on no-take marine reserves, such areas are more likely to reliably create such benefits on the

California coast. Although partial take areas can play a valuable role, they should be viewed as a complement to SMRs and not as a substitute for a core network of fully protected areas.

Partial-Take MPAs Do Not Provide the Full Benefits of No-Take Reserves.

Although most of the published research related to MPAs is based on study of no-take marine reserves, the data available comparing no-take areas with those allowing limited take suggests that allowing some level of extraction can reduce or even eliminate the benefits associated with the MPA. Problems with allowing partial take can result from direct or indirect ecological effects as well as difficulties in administering and enforcing areas with complex or confusing regulations.

Sobel and Dahlgren (2004) note that allowing some fishing in an area can open up both enforcement and ecological difficulties. They warn that allowing some fishing in an MPA threatens the protected area with ecological effects that may cascade through the ecosystem and caution that since we know relatively little about many ecological interactions, any allowance for fishing may have unforeseen consequences.¹

Denny and Babcock's (2004) study of a New Zealand marine park closed to all commercial fishing but open to recreational fishing (by unweighed single hook lines, trolling or spearfishing) found that when compared to a fully protected marine reserve and to open areas, the marine park most closely resembled the areas that were fished. Notably, the fish allowed to be caught were all thought to be nomadic or pelagic and not considered to be part of the resident demersal reef fish assemblage the park was designed to protect. At the time, there was limited information on the biology and ecology of three species that were later found to be reef residents and therefore very vulnerable to fishing.²

Similarly, Schroeder and Love's (2002) study of California rockfish assemblages for three differently fished areas—open to all fishing, open only to recreational fishing, and a de facto reserve—demonstrated the impacts of recreational angling within an MPA. The area open to recreational fishing had the lowest rockfish density with predominantly small fishes, leading the authors to conclude that large predators may disappear when a reef is fished even lightly, and this in turn may alter ecosystem structure through top-down, trophic cascades.³

We hope that high-protection areas under the MLPA will be able to create significant benefits, and we consider them an important tool in network design. The examples above, however, underscore that SMRs and partial take areas are not equivalent, and that SMRs occupy a necessary place as a means of meeting a number of MLPA goals.

¹ Jack Sobel and Craig Dahlgren. 2004. Marine Reserves A Guide to Science, Design, and Use. Island Press, Washington, DC. Page 154-156.

² Denny, C.M., and R.C. Babcock. 2004. Do partial marine reserves protect reef fish assemblages? *Biological Conservation* 116:119-129.

³ Schroeder, D.M. and M.S. Love. 2002. Recreational fishing and marine fish populations in California. *CalCOFI Rep.* 43: Pages 182-190.

Partial Take Areas Are More Difficult to Administer and Enforce than No-take Areas.

Finally, partial take MPAs can create management challenges that increase the administrative burdens or undermine the effectiveness of an MPA network. Bohnsack et al (2004) provide 17 reasons why there is strong scientific, management, and public interest in using no-take marine reserves versus multiple-use or zoning.⁴ He notes for example that only no-take reserves can effectively serve as control sites to evaluate the impacts of fishing on marine ecosystems and to distinguish between natural and human-caused disturbance.

Finally, on-the-water experience with partial-take areas in the Channel Islands and South Atlantic region has led law enforcement personnel to recommend greater reliance on fully protected areas in place of partial-take MPAs due to the difficulty of enforcing partial-take areas.⁵

Conclusion

We urge the SAT to ensure that its evaluation methodologies take into account the unique benefits of a core of fully protected marine reserves and the limitations of partial take MPAs.

Thank you for your consideration of these comments.

Sincerely,

Kaitilin Gaffney
Ocean Conservancy

Kate Wing
NRDC

⁴ Bohnsack, J.A. et al. 2004. Why have no-take marine protected areas? American Fisheries Society Symposium 42:183-193.

⁵ Enforcement Presentation on Marine Protection Program. Chief Ranger Jack Fitzgerald, Channel Islands National Park, Presentation to Channel Islands National Marine Sanctuary Advisory Council, July 27, 2007. Recommendations of the Joint Law Enforcement Committee and Advisory Panel on Enforcement Criteria for Establishing Marine Reserves. Prepared for South Atlantic Fishery Management Council. February 19-20, 1998.